

Appl. No. 10/718,840
Amdt. Dated January 21, 2005
Reply to Office Action of December 14, 2004

AMENDMENTS TO THE SPECIFICATION

Please amend the title as follows:

--Crosslinking Polymer Composition For Thin Film Rubber Products--

Please amend paragraph #0007 as follows:

-- One embodiment of the present invention provides a crosslinked elastomeric rubber latex composition for thin film products. The composition includes a polymer containing units having at least one of ~~carboxyl and hydroxyl~~ -OH, -SH, -NH, -NH₂, -COOH, -SO₂NH₂, -CONH₂, -Cl or -Br functional groups. Also included is a coreactant polyelectrolyte that is compounded with the polymer to form a compound. The coreactant polyelectrolyte has a relatively low molecular weight compared to the polymer, and contains units having at least one of ~~carboxyl and hydroxyl~~ -OH, -SH, -NH, -NH₂, -COOH, -SO₂NH₂, -CONH₂, -Cl or -Br functional groups. Also included is a polyfunctional crosslinking agent that is timely added to the compound. This crosslinking agent is capable of crosslinking with at least ~~two of the carboxyl or hydroxyl functional groups, or at least one of the carboxyl functional groups and at least one of the hydroxyl~~ one of the -OH, -SH, -NH, -NH₂, -COOH, -SO₂NH₂, -CONH₂, -Cl and -Br functional groups present at ambient temperature (e.g., 70 °F (21.1 °C) and 119 °F (48.3 °C)) or higher, thereby forming a crosslinked network in the elastomeric rubber latex composition for thin film products.--

Please amend paragraph #0009 as follows:

--The polyfunctional crosslinking agent may crosslink, for example, by purely ionic means through salt bridges formed between protonated nitrogen atoms of the crosslinking agent and anionic ~~carboxyl and/or hydroxyl functionalities~~ functional groups of the polymer. Alternatively, or in addition to, the polyfunctional crosslinking agent may crosslink with itself via ring opening and polymerization to form higher molecular weight polyamines which can also crosslink by ionic means. Alternatively, or in addition to, the polyfunctional crosslinking agent may covalently crosslink anionic ~~carboxyl and/or hydroxyl functionalities~~ functional groups of the polymer and the coreactant polyelectrolyte to form a three dimensional crosslinked network by

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bridging polymer and polyelectrolyte chains. Alternatively, or in addition to, the polyfunctional crosslinking agent may entangle and entrap the polymer and the coreactant polyelectrolyte as it polymerizes into higher molecular weight forms.--

Please delete paragraph #0010, the contents of which have been incorporated into paragraph #s 0007, 0009, 0012, and 0014.

Please amend paragraph #0012 as follows:

--The polymer can be, for example, in the form of an aqueous latex rubber comprising a synthetic rubber that has ~~carboxyl and/or hydroxyl~~ functional groups attached to a acrylonitrile butadiene polymer, a butadiene polymer, a chloroprene polymer, a polyurethane polymer, or a acrylonitrile butadiene polymer blend. The coreactant polyelectrolyte may comprise, for example, a ~~carboxylated and/or hydroxylated~~ styrene butadiene, butadiene, ethylene acrylic polyelectrolyte, or any other ~~carboxylated and/or hydroxylated~~ synthetic polyelectrolyte containing functional groups for crosslinking polymer chains. The compound to which the polyfunctional crosslinking agent is added may further include one or more of the following: fillers, waxes, plasticizers, surfactants, soaps, antioxidants, and pigments. The polyfunctional crosslinking agent can be added to the compound, for example, 1 to 72 hours before use of the composition, and at a level of no more than about 10% by weight of the polymer to the compound. In one specific embodiment, the polyfunctional crosslinking agent is added 2 to 48 hours before use of the composition, and at a level of no more than about 0.1 to 5% by weight of the polymer to the compound.--

Please amend paragraph #0014 as follows:

--Another embodiment of the present invention provides ~~an a~~ method for dip-forming elastomeric thin film rubber products. The method includes compounding a solution, latex, or dispersion of rubber latex A that includes A1 and A2 with a crosslinking agent B to provide a rubber polymer latex dip-forming composition. A1 is a polymer containing units having at least one of ~~carboxyl and hydroxyl~~ -OH, -SH, -NH, -NH₂, -COOH, -SO₂NH₂, -CONH₂, -Cl and -Br functional groups, and A2 is a coreactant polyelectrolyte having a low molecular weight relative

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to the polymer and containing units having at least one of ~~carboxyl and hydroxyl~~ -OH, -SH, -NH, -NH₂, -COOH, -SO₂NH₂, -CONH₂, -Cl and -Br functional groups. B is a polyfunctional crosslinking agent capable of crosslinking with at least ~~two of the carboxyl or hydroxyl functional groups, or at least one of the carboxyl functional groups and at least one of the hydroxyl~~ one of the -OH, -SH, -NH, -NH₂, -COOH, -SO₂NH₂, -CONH₂, -Cl and -Br functional groups present at ambient temperature or higher. The method further includes dipping a dip former in the rubber polymer latex dip-forming composition, and withdrawing the dip former, thereby providing a dip-formed wet latex gel layer. The method continues with curing the dip-formed wet latex gel layer at ambient temperature or higher, so as to allow a crosslinking network to form, and to provide a dip-formed dry-latex-layer elastomeric thin film rubber latex product.—